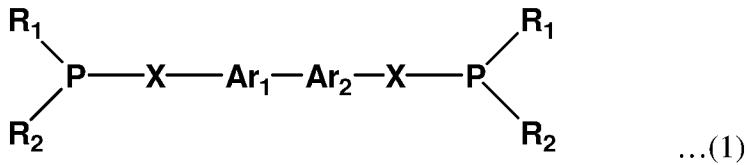


IN THE CLAIMS

1. (Currently amended) A catalyst composition comprising a bidentate ligand represented by formula 1, a monodentate ligand represented by formula 2, and a transition metal catalyst represented by formula 3:

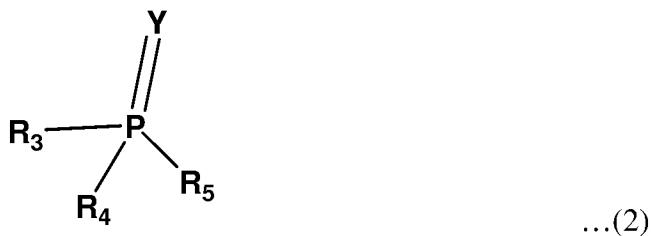


wherein

each of R₁ and R₂ is a substituted or unsubstituted C1-20 alkyl group; a substituted or unsubstituted C1-20 alkoxy group; a substituted or unsubstituted C5-20 cycloalkane or cycloalkene; a substituted or unsubstituted C6-36 aryl group; a substituted or unsubstituted C1-20 heteroalkyl group; a substituted or unsubstituted C4-36 heteroaryl group; or a substituted or unsubstituted C4-36 heterocyclic group,

Ar₁-Ar₂ is a bisaryl compound, and

X is oxygen (O) or sulfur (S),



wherein

each of R₃, R₄ and R₅ is a substituted or unsubstituted C1-20 alkyl group; a substituted or unsubstituted C1-20 alkoxy group; a substituted or unsubstituted C5-20 cycloalkane or cycloalkene; a substituted or unsubstituted C6-36 aryl group; a substituted or unsubstituted C1-20 heteroalkyl group; a substituted or unsubstituted C4-36 heteroaryl group; or a

substituted or unsubstituted C4-36 heterocyclic group, each of R₃, R₄ and R₅ being optionally substituted with nitro (-NO₂), fluorine (F), chlorine (Cl), bromine (Br), or a C1-4 alkyl group, and

Y is oxygen (O) or sulfur (S),

M(L₁)_l(L₂)_m(L₃)_n ... (3)

wherein

M is a transition metal,

each of L₁, L₂ and L₃ is hydrogen, CO, acetylacetato, cyclooctadiene, norbornene, chlorine, or triphenylphosphine,

each of l, m and n is a number of 0 to 5, provided that all l, m and n are not zero simultaneously,

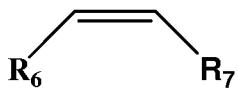
wherein the concentration of the transition metal is 50 to 500 ppm based on the amount of the catalyst composition, and the concentration of the bidentate ligand is 0.5 to 20 mol and the concentration of the monodentate ligand is 0.1 to 200 mol, respectively, per mol of the transition metal,

wherein the transition metal catalyst is acetylacetonatodicarbonylrhodium (Rh(AcAc)(CO)₂), the bidentate ligand is 1,1'-biphenyl-2,2'-diyl-bis(dipyrrolylphosphoramidite) (BPO-P(Pyl)₂), and the monodentate ligand is triphenylphosphine oxide (TPPO).

2. to 9. (Canceled).

10. (Withdrawn - Previously presented) A process of hydroformylating an olefin compound, comprising reacting the olefin compound with a gas mixture of hydrogen and carbon monoxide with stirring at elevated pressure and temperature in the presence of the catalyst composition of claim 1 to produce an aldehyde.

11. (Withdrawn) The process of claim 10, wherein the olefin compound is represented by formula 4:



...(4)

wherein

each of R_6 and R_7 is hydrogen, a C1-20 alkyl group, fluorine (-F), chlorine (-Cl), bromine (-Br), trifluoromethyl (-CF₃), or a C6-20 phenyl group substituted with 0 to 5 substituents selected from the group consisting of nitro (-NO₂), fluorine (-F), chlorine (-Cl), bromine (-Br), methyl, ethyl, propyl and butyl.

12. (Withdrawn) The process of claim 10, wherein the olefin compound is a compound selected from the group consisting of ethene, propene, 1-butene, 1-pentene, 1-hexene, 1-octene, and styrene.